



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/780,402	02/12/2001	Junichi Yamanouchi	034299-306	8498

21839 7590 11/22/2002

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 11/22/2002

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/780,402

Applicant(s)

YAMANOUCHI ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 8-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

DETAILED ACTION

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 9/6/02.

The following rejection is non-final in light of the new grounds of rejections as set forth below using the English translation of JP 09059522 which was previously unavailable.

Additionally, it is noted that applicants correctly point out that the incorrect patent number is cited for the Tsutsumi et al. reference on the PTO-892 mailed 3/6/02. The incorrect citation has been stricken from this PTO-892 (copy of which is included with this office action) and a new PTO-892 with the correct patent number for the Tsutsumi et al. reference is included in this office action.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3, 5, and 8-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sacripante et al. (U.S. 6,025,412) or Tsutsumi et al. (U.S. 6,031,019) either of which in view of JP 09059522.

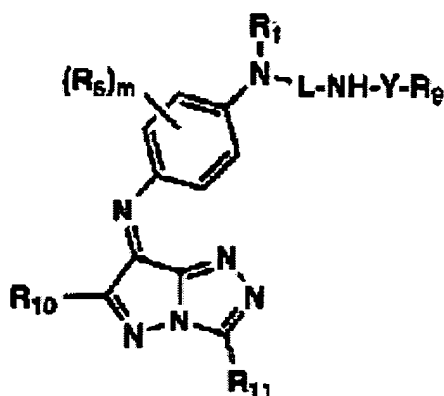
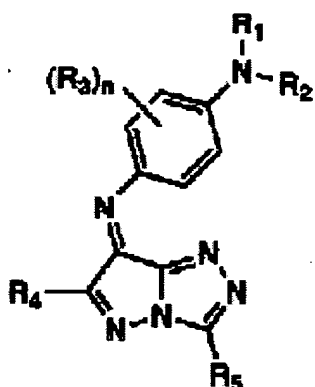
Sacripante et al. disclose an aqueous ink jet ink and method of ink jet printing wherein the ink comprises colored particles dispersed in a liquid medium and wherein the colored particles comprises oil-soluble polymer including polyamide and polyester comprising 2.5-15 mol% ionic group such as carboxyl and sulfonate group and oil-soluble dye. There is also

disclosed a method of making the colored particles wherein the polymer, dye, and solvent are added to water and then emulsified. There is further disclosed an ink jet printing method wherein the above described ink is added to ink jet printer (col.3, lines 25-32, col.3, line 64-col.4, line 2, col.4, lines 5-8, 14-17, and 36-51, col.5, lines 8-11, col.6, line 53, col.9, lines 18-24 and 37-38, col.11, lines 21-23, and col.12, lines 7-12). From example 1, it is calculated that the polymer comprises approximately 0.35 mmol/g ionic group $((\text{amount ionic group}) / ((\text{amount polymer})(\text{MW ionic group}))) \times 1000$ or $(30 / (354)(239)) \times 1000$.

Alternatively, Tsutsumi et al. disclose a water-based ink jet ink and method of ink jet printing wherein the ink comprises polymer particles colored with oil-soluble dye wherein the polymers include polyurethane and polyester comprising 1-25% ionic groups including carboxyl and sulfonic groups. There is also disclosed a method of making the colored particles wherein the polymer, dye, and solvent are added to water and then emulsified. There is further disclosed an ink jet printing method wherein the above described ink is added to ink jet printer (col.1, lines 14-24, col.3, line 65-col.4, line 17, col.4, lines 21 and 49-51, col.6, lines 54-56, col.8, lines 11-12, col.11, lines 56-60, and col.12, lines 61-67). From example 1-2, it is calculated that the polymer comprises approximately 1.75 mmol/g ionic group $((\text{amount ionic group}) / ((\text{amount polymer})(\text{MW ionic group}))) \times 1000$ or $(15 / (100)(86)) \times 1000$.

The difference between either Sacripante et al. or Tsutsumi et al. and the present claimed invention is the requirement in the claims of specific type of oil-soluble dye.

JP 09059552, an English translation of which is included in this office action, which is drawn to ink jet ink, disclose the use of oil-soluble dyes of the formula:



wherein R_1 and R_2 , corresponding to presently claimed R^4 and R^5 , are hydrogen, aliphatic, aromatic, or heterocyclic group, L is alkylene group, Y is carbonyl or sulfonyl group, R_9 is aromatic, aliphatic, heterocyclic, alkoxy, or amino group, R_3 or R_6 , which each correspond to either presently claimed R^2 , R^3 , R^6 , and R^7 are halogen, alkoxy, aryl, carboxyl, or amino group, R_4 or R_{10} , which each correspond to presently claimed R^1 , are aliphatic, aromatic, heterocyclic, alkoxy, sulfonyl, or amino group, presently claimed X is $-CR_5=$ or $-CR_{11}=$, which each correspond to presently claimed $-C(R^8)=$, where R_5 or R_{11} is hydrogen, aliphatic, or aromatic group, presently claimed Y is $-N=$, and presently claimed B^1 is $=C(R^6)-$ and B^2 is $-C(R^7)=$ wherein R^6 and R^7 are defined above (abstract, claim 1, and paragraphs 50-56).

With respect to the claim limitation that there is present two or more substituents groups of the formula $-NR^{170}SO_2R^{171}$ in the dye, it is noted that substituents R^1 and R^2 (which correspond to presently claimed R^4 and R^5), R^3 and R^6 (which correspond to presently claimed R^2 or R^3), and R^4 and R^{10} (which correspond to presently claimed R^1) of the dye can each contain $NRSO_2R$

substituent as presently claimed (paragraph 25 (last four lines of page 18), paragraph 26, lines 11-12, paragraph 27, lines 12-15, and paragraphs 43-47).

Further, with respect to newly added claims 21-23, it is noted that R^5 and R^{11} which each correspond to presently claimed R^8 is disclosed as substituted aryl group as presently claimed (paragraphs 28 and 47).

The motivation for using such dye in the ink composition is that the dye produces a printed image that has excellent color tone, reproducibility, and resistance to light (abstract).

Although there is no explicit disclosure in JP 09059522 of the wavelength of maximum absorption or absorbance at different wavelengths as presently claimed, given that JP 09059522 disclose dye identical to that presently claimed, i.e. dye which has identical chemical structure, it is clear that the use of the dye disclosed by JP 09059522 in the ink of either Sacripante et al. or Tsutsumi et al. would intrinsically produce an ink composition with wavelength of maximum absorption or absorbance as presently claimed.

In light of the motivation for using specific dye disclosed by JP 09059552 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such dye in the ink jet ink of either Sacripante et al. or Tsutsumi et al. in order to produce an ink which produces a printed image that has excellent color tone, reproducibility, and resistance to light, and thereby arrive at the claimed invention.

4. Claims 1-5 and 8-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Sacripante et al. (U.S. 6,025,412) or Tsutsumi et al. (U.S. 6,031,019) either of which in view of JP 03231975.

The rejection is adequately set forth in paragraph 8 of the office action mailed 3/6/02, Paper No. 4, and is incorporated here by reference.

With respect to newly added claims 21-23, it is noted that JP 03231975 discloses that R⁵ which corresponds to presently claimed R⁸ is substituted aryl group (page 7, lines 11-13 after formula and page 16, lines 1-3). An English translation of JP 03231975 is included with this office action.

Response to Arguments

5. Applicants' arguments filed 9/6/02 regarding Helling et al. (U.S. 6,313,196) have been fully considered but they are moot in view of the discontinuation of this reference against the present claims.

6. Applicants' arguments filed 9/6/02 have been fully considered but, with the exception of arguments relating to Helling et al., they are not persuasive.

Specifically, applicants argue that:

(a) JP 09059522 does not disclose dye which contains two or more substituent groups represented by $-\text{NR}^{170}\text{SO}_2\text{R}^{171}$ as required in the present claims.

(b) there is no motivation to combine Sacripante et al. with JP 03231975 given that Sacripante et al. requires the use of dyes not found in JP 03231975.

(c) There is no disclosure in Sacripante et al. that the vinyl polymer has at least one carboxyl group or sulfonic acid group.

(d) There is no motivation, other than improper resort to applicants' own disclosure, to combine Tsutsumi et al. with JP 03231975.

(e) Comparative data establishes unexpected or surprising results over the cited prior art.

(f) There is no disclosure in JP 03231975 of vinyl polymer as presently claimed.

With respect to argument (a), it is noted that given that JP 09059522 disclose that substituents R^1 and R^2 (which correspond to presently claimed R^4 and R^5), R^3 and R^6 (which correspond to presently claimed R^2 or R^3), and R^4 and R^{10} (which correspond to presently claimed R^1) of the dye can each contain $NRSO_2R$ substituent as presently claimed (paragraph 25 (last four lines of page 18), paragraph 26, lines 11-12, paragraph 27, lines 12-15, and paragraphs 43-47), that JP 09059522 meets the requirements of the present claims.

With respect to argument (b), applicants point to col.3, lines 42-45 and col.8, lines 15-24 of Sacripante et al. and argue that Sacripante et al. require the use of dyes which possess two or more hydroxyl, diester, or dicarboxylic acid components and that since such dyes are not found in JP 03231975, there is no motivation to combine Sacripante et al. with JP 03231975.

However, it is noted that the dyes disclosed in col.8, lines 15-24 are just a few embodiments of dyes suitable for use in Sacripante et al. These dyes are utilized when the dye is incorporated into the base resin chain. It is noted that col.4, lines 8-10 disclose that the dye is incorporated into the base chain or attached to the polymer, while col.6, lines 49-53 disclose that any suitable commercially available dye can be used including oil-soluble dyes (same type of

dye as presently claimed and also used in JP 03231975). Thus, it is clear that while in one embodiment, Sacripante et al. use dyes which possess two or more hydroxyl, diester, or dicarboxylic acid components, in another embodiment, oil-soluble dyes are utilized. Although there is no explicit disclosure of the specific type of oil-soluble dye used, this is why Sacripante et al. is used in combination with JP 03231975.

With respect to argument (c), it is noted that col.4, lines 36-51 of Sacripante et al. disclose that the polymer has hydrophilic groups attached including carboxylic acid alkali salts and alkali sulfonated groups. These groups are identical to those utilized in the present invention (see present specification page 61, line 8-page 62, line 5, page 63, third full paragraph, and paragraph bridging pages 63-64).

With respect to argument (d), applicants argue that there is no motivation to combine Tsutsumi et al. with JP 03231975 other than improper hindsight. However, it is the examiner's position that there is proper motivation to combine Tsutsumi et al. with JP 03231975.

Tsutsumi et al. disclose ink jet ink which comprises polymer particles colored with oil-soluble dye wherein the polymers include vinyl polymers comprising ionic groups. There is no disclosure in Tsutsumi et al. of specific oil-soluble dye as presently claimed. This is why Tsutsumi et al. is used in combination with JP 03231975, which like Tsutsumi et al., is also drawn to ink jet inks. JP 03231975 discloses oil-soluble dye identical to that presently claimed and further discloses that the motivation for using such dye is that it produces an image with good hue. Thus, given that both JP 03231975 and Tsutsumi et al. are drawn to the same field of

endeavor, given that Tsutsumi et al. disclose use of dye which is preferably oil-soluble, and given that JP 03231975 discloses oil-soluble identical to that presently claimed which produces image with good hue, it is the examiner's position that there is motivation to combine the references.

Applicants also argue that there is no motivation to select the claimed dye from the extensive list of dyes disclosed by JP 03231975. However, it is noted that not only does JP 03231975 disclose formula for dye identical to that presently claimed wherein there is extensive overlap between the presently claimed substituents and the reference substituents, but also, JP 03231975 explicitly discloses dyes identical to those presently claimed (see for instance, page 17, dyes 1-3).

With respect to argument (e), applicants point to comparative found in table 2, page 82 of the present specification in order to establish criticality of the presently claimed dye.

However, it is the examiner's position that this data is not successful in establishing unexpected or surprising results over the cited prior art for the following reason.

While the data shows that ink of the present invention exhibits superior color tone, this result is not believed to be unexpected or surprising given that JP 03231975 already discloses that the motivation for using dye as presently claimed is to produce ink with good hue, i.e. color tone, as compared to conventional dyes. Although there is no disclosure in JP 03231975 that the dye would produce ink with superior light resistance, dependency on paper, and stability as also disclosed in Table 2, given that JP 03231975 discloses dye identical to that presently claimed, it

is clear that ink containing such dye would intrinsically possess good light resistance, stability, and dependency on paper as presently claimed.

With respect to argument (f), applicants argue that there is also no motivation to combine Tsutsumi et al. with JP 03231975 given that there is no disclosure in JP 03231975 of vinyl polymer as presently claimed.

However, note that while JP 03231975 does not disclose all the features of the present claimed invention, note that JP 03231975 is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, specific type of oil-soluble dye suitable for use in ink jet inks, and in combination with the primary reference, discloses the presently claimed invention. If the secondary reference contained all the features of the present claimed invention, it would be identical to the present claimed invention, and there would be no need for secondary references.

Additionally, attention is drawn to comparative example 2 of the present specification (Table 2, page 82) which discloses ink comprising dye but no vinyl polymer. It is noted that the ink still possesses good color tone. The color tone, in fact, is equivalent to inks which do comprise vinyl polymer (see inventive examples). Thus, it appears that the presence (or absence) of vinyl polymer does not effect the color tone of the ink. Thus, although JP 03231975 does not disclose the use of vinyl polymer, it is clear that the dye disclosed by JP 03231975 would still

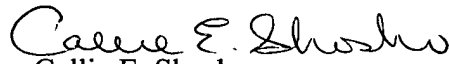
Art Unit: 1714

impart good color tone or hue to the ink. Thus, there is motivation to combine Tsutsumi et al. with JP 03231975.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.


Callie E. Shosho
Examiner
Art Unit 1714

CS
November 18, 2002